

Flight, June 11, 1910.

FLIGHT

First Aero Weekly in the World.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.

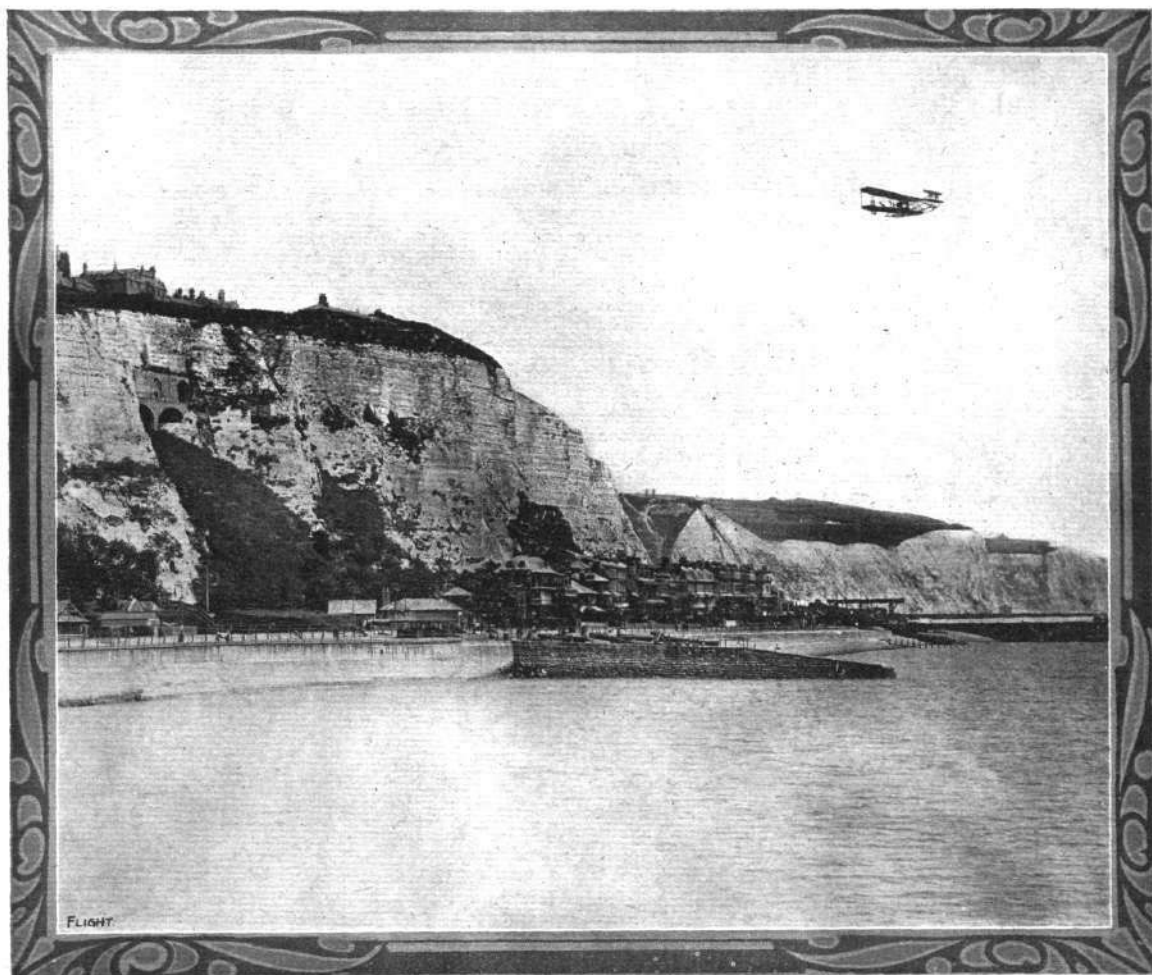
OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM.

No. 76. (No. 24, Vol. II.)

JUNE 11, 1910.

[Registered at the G.P.O.]
as a Newspaper.

[Weekly. Price 1d.
Post Free, 14d.]



The Hon. C. S. Rolls' Epoch-making Flight, on his Short-Wright type Biplane, across the Channel and back last week.—
A "composite" photograph, giving a vivid impression of the flight as seen from the water.

BRAVO ROLLS— AND OTHER BRITISH CHAMPIONS.

THE record of the past week has been one which should give rise to the liveliest feelings of gratification to those who have never wavered in their belief in British capabilities and determination still to lead where enterprise and pluck are needed. It should therefore go very far towards silencing the critics who are so fond of croaking about an effete and played-out people. At long last, and in, eminently dignified fashion, it has been demonstrated to the world that we have among us flying men who can do all that the limitations of the present-day aeroplane will permit, and that we can also build as good machines as those produced in other countries. As a nation, the Briton is not given to boasting of what he has done or what he intends to do, but without outraging any of the canons of good taste, we do think that in the Hon. C. S. Rolls' cross-Channel flight something has been accomplished which, as a performance, ranks even ahead of Paulhan's historic London to Manchester journey. It is true that Mr. Rolls was not the first to achieve a cross-Channel flight, but the conditions under which it was accomplished were such as to justify the claim that it far transcends either the pioneer flight of Blériot, or the more recent conquest of the silver streak by de Lesseps. Apart from the greater magnitude of the actual performance, there was no chain of motor boats placed at intervals across the Channel to render first aid to the aviator in case of accident; no escorting torpedo craft to watch over his safety. The undoubted risks of such a journey were recognised and accepted in that spirit of calculating pluck and confidence which is one of those characteristics that have made the Briton respected all over the world.

Another point in connection with this record flight is that there was nothing in the nature of the theatrical about it—it was planned and carried out quite as a matter of course and with no attempt at mere self-advertisement. It is impossible, of course, to keep the intention to go for a record of the kind a secret from the enterprising Pressman—and, indeed, in the present state of development of the aeroplane it is not desirable that these long distance flights should be kept quiet until they have been accomplished. We have recently had a good deal to say on the subject of arousing public interest in flying, and from this point of view we might perhaps have wished that more had been made of the preliminaries of Mr. Rolls' performance. In our view it is just because the British aviator is far from being a self-advertising kind of person that the progress of flight has been as apparently slow as it has been in this country. We say "apparently slow" quite advisedly, for although it is impossible justifiably to claim that the way has been led by Britons in matters affecting the science of flight in the heavier-than-air machine, yet workers in this country have not been so far behind their foreign rivals as most people think. If we have our Rolls and our Grahame-White, we also have our Shorts and our Dunes amongst many others, all of whom are doing as good work in the development and construction of the machine of the future as are the former in demonstrating the capabilities of the present day machines that are put into their hands. True, they are only just beginning to come into their own as originators and builders of air-craft, but there is a reason for that which is quite outside the ability to design and build a machine as good as any of the

French constructors. That reason is mainly that we have not in this country a body of professional flying men like those who have put France at the head of the countries in the matter of what we may call spectacular flight. In England our aviators are all—or nearly all—amateurs owning their own machines, to whom the winning of large money prizes is of relatively small moment. Take this flight of Mr. Rolls, for instance. Being an amateur and therefore an enthusiast in the development of the science, instead of being in it for the *£ s. d.* of the thing, he preferred the cause of progress to the mere winning of sovereigns. It may not lead to spectacular sensationalism, but it certainly makes for ultimate solid progress.

As far as professionalism goes it must not be supposed, of course, that we take any inherent exception to it; in fact, we willingly recognise that had it not been for the professional flying man of France the science would have been in a far more backward state than it is at this moment. The aeroplane, as we know it to-day, has been brought to the stage of perfection to which it has attained through the large sums of money which have been won in the shape of prizes on cruder machines. It is necessary to walk before running can be thought of, and in the development of the flying machine the preliminary walking costs a great deal of money—far more than most pioneers can afford out of their own pockets. As the original prizes which were put up by public-spirited people were won, so the proceeds were devoted to the building of better machines in order to go out and win the next prize, and, this won, the same thing happened again. Thus the development of the aeroplane in France may be said to have eventuated as a result of prize-money won. In our own case things have been different. Our pioneers have waited—too long, as many think—for the lessons of their rivals' achievements to sink in and be assimilated, with the result that they have made their outward and visible start when the foreign flying man ceased to have to concern himself with purely elementary questions. In the result, the outcome has been fairly satisfactory, and we can lay the flattering unction to our souls that our knowledge of construction and design is at least equal to that of our rivals, and we are not a whit behind now in the quality of our practical airmen and aeroplane constructors.

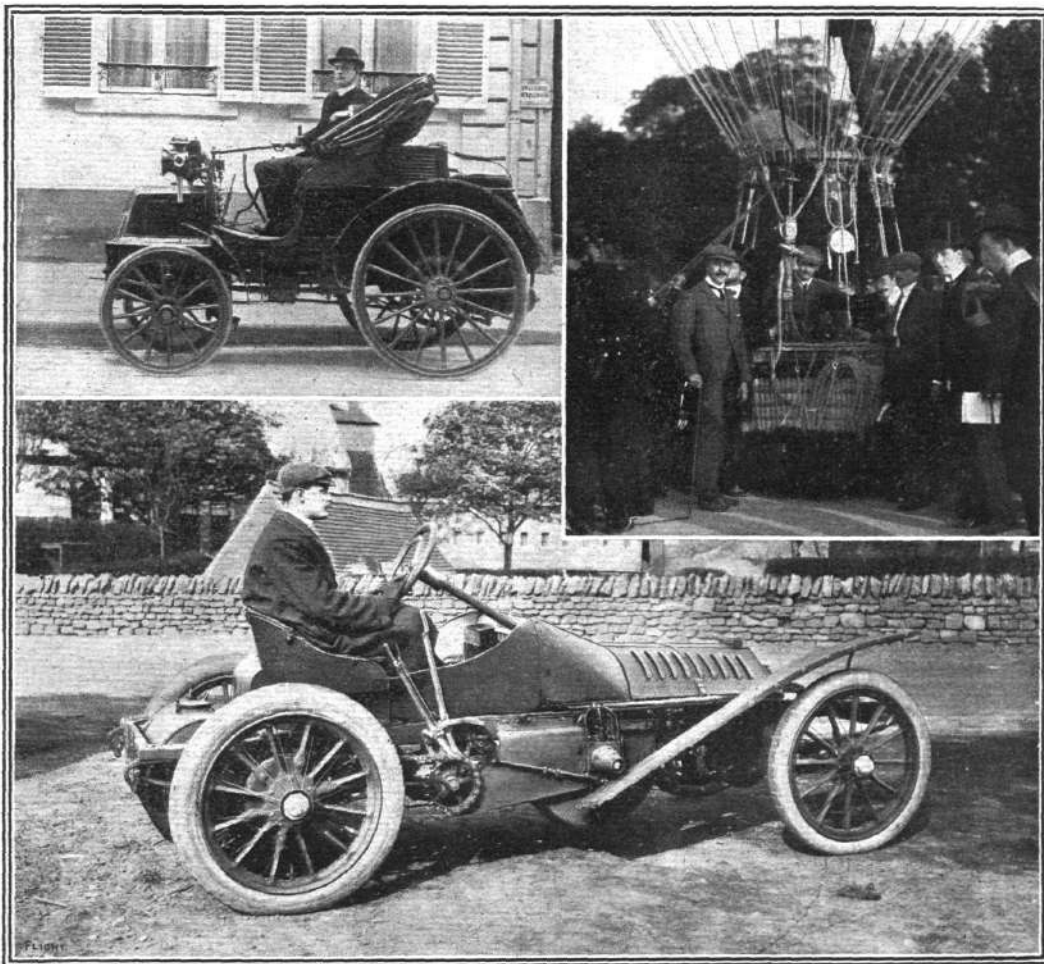
So it has also been, moreover, with the Government authorities in this country; and appropriately enough they have afforded much the same proof, during the same week, of their progress with airships that Rolls has done for the British aviator. The nocturnal voyage of the Army dirigible "Beta" from Aldershot to London and back the other night may not be much, viewed in the light of the long-distance flights of Continental military dirigibles, but still was an unostentatious feat betokening a mastery of the art, and was carried out in an altogether admirable and thoroughly dignified manner. Now that Mr. Rolls has conclusively proved that there is nothing impossible in the idea of a sudden raid by aeroplane, and the Army authorities have satisfied themselves that it actually is possible for a dirigible balloon to make an air voyage without mishap, it is permissible to hope that considerably more enthusiastic development of aircraft will be followed up quickly by the State, even if only in the interests of national defence.

THE HON. C. S. ROLLS' HISTORICAL FLIGHT.

AN important page in the history of the development of flight has once more been turned down by the splendid achievement of the Hon. C. S. Rolls on his Short-Wright type biplane with horizontal tail, in flying over the Channel and returning to his starting point without alighting on French soil. Abroad most of the noteworthy feats have been accomplished by professional aviators. In Britain it is otherwise, as in all sports and science. The man who out-stands in progress is almost without exception the amateur. In this respect the art of flying is proving no

exception. We doubt if any foreigner, without the smallest monetary inducement, would, like Mr. Rolls, have started on this flight across the Channel. And in that lies the difference in sport as understood in Great Britain and as understood abroad.

In making this flight Mr. Rolls has placed to his credit several records of which he may well be proud. It is the first time the Channel has been flown by a Britisher, the first time the double journey has been accomplished, the first time it has been done on a biplane, and, moreover, it is the first time the landing after the



The Hon. C. S. Rolls, whose flight from Dover across the Channel to France and back without a stop, has largely won back British prestige in the art of flying, was, it will be remembered, one of the most enthusiastic believers in motorism before the days of its emancipation. Our photographs above provide a happy reminder of the past prowess of Mr. Rolls in this direction, as well as drawing attention to his association with ballooning, as distinct from his present triumphs with the heavier-than-air machine. Mr. Rolls, representing Great Britain, is seen in his balloon at the Tuileries, Paris, just before the start of the race for the Gordon-Bennett Cup in 1906, when he only missed being the winner by a very narrow margin. In the top left photograph Mr. Rolls is seen in the first 4-cyl. Panhard car of 8-h.p. which won the Paris to Marseilles Race of 1896, and which was afterwards imported by him to England. The lower photograph shows Mr. Rolls in the Wolseley racing car, driven by him, on behalf of Great Britain, in the Gordon-Bennett Race in the French Auvergne in 1905.

event has been made at the exact pre-arranged spot and without damage. Incidentally another record also attaches to the flight, viz., the occasion of the most elaborated journalistic account, "à la Munchausen," as supplied by an enterprising reporter to the general Press. Practically all the "details" which have appeared in morning papers have been pure fabrications. Mr. Rolls never disclosed the contents of the congratulatory telegram received from the King, this being of a purely private character. Yet what purports to be the exact text has duly appeared. All the wonderful tales of the doings at Dover, of Mr. Rolls' parents, Lord and Lady Llangattock, and his sister after the event, although quite picturesque, are hardly accurate, inasmuch as none of them were there! It is true they had visited the scene of preparation some days previously, but this hardly justifies romancing upon such a very elaborate scale. However, as present-day journalistic methods in certain quarters demand this sort of sensationalism, we presume there will always be those who will be ready to supply it.

Now, as to facts, first and foremost the exact times of the flight as recorded by Capt. Moore, R.E., are perhaps the most important. Mr. Rolls on his Wright machine left the starting rail by his shed at Broadlees, Dover, at 6.30½ p.m. by the clock; he crossed the British coast line at 6.34½ p.m., the French coast line about 1½ miles east of Sangatte upon his return journey at 7.15 p.m. (English time) re-crossed the British coast line at 8.2 p.m., and, after circling Dover Castle, finally landed at his starting place by the rail at his shed at Broadlees at 8.6 p.m. Before turning for his homeward journey flew for a third of a mile inland over French soil, and "posted," by dropping a letter of greeting to the Aero Club of France.

Probably no man's name was more prominent in the Press of the World, especially the British, following this record flight than Mr. Rolls'. Yet the man himself had little to say in praise of his own remarkable achievement.

BRITISH ARMY AIRSHIP SAILS TO LONDON.

FOR the second time in history a military airship has sailed from Aldershot to London, but the little dirigible "Beta," unlike her predecessor, was successful in returning to her base. It was a dark night, but very calm, on Friday of last week, when the squad of Royal Engineers received orders to assist in preparing the "Beta" for a night flight. She was taken out of the shed, and at 11.39 p.m., everything being in order, Col. Capper gave the order to let go. In the car with Col. Capper were Lieut. E. M. Waterlow and Mr. J. Ridge, each one carrying a little electric light to enable them to view the various instruments, &c., under their charge. Rising to a height of 800 feet the little craft was manoeuvred over the balloon factory, with the Green engine running at half speed, to see that everything was working satisfactorily, and then a course was shaped for Farnborough Station on the South-Western Railway. On reaching that point the course was altered to north-east, and the main line followed to London over Pirbright, Woking, Byfleet, Weybridge, Hampton Court, Wimbledon, Clapham Junction to Southwark Bridge, which was reached about 2 a.m. So far the only incident had been an engine stop of a few

minutes, while over the Brooklands track, to adjust a minor part. At Southwark Bridge the airship turned to pass over St. Paul's Cathedral, and then, keeping on a westward course, Holborn was followed to Marble Arch, where the course was again altered, taking the ship over Hyde Park, Kensington, Hammersmith, Brentford, Hounslow, Staines. There the river was once more crossed to pick up the main road to Southampton, which was followed through Egham, Sunningdale, and Bagshot. At 3.30 Farnborough was sighted, and at 3.43 a.m. the airship landed just by its shed, at the conclusion of the best flight which has yet been accomplished in the annals of the British balloon factory.

A photograph of the "Beta" appeared in our last issue, and this clearly showed the alterations which have been recently made in the vessel. The envelope has been lengthened by the insertion of a panel about 20 feet wide at the greatest diameter. The cushion-like ballonets at the after-end of the envelope have been replaced by balancing planes, and the position of the vertical plane and rudder modified. The engine-room has also undergone re-arrangement, and the propellers are now driven by 35-h.p. Green engines.

It was the machine, not the man. Credit should go to the designers, the Wright Brothers. He was merely the user of their work. All he had to do was to sit quietly and let the machine take him across and back again, or words to that effect. Whilst acknowledging the justice of this apportioning of credit up to a point, it is only with such men as Mr. Rolls to back up their creations that continued progress can be hoped for by the originators of the machines themselves. Asked what his feelings and sensations were, Mr. Rolls, as ever modest, could not say there was anything unusual to talk about. He had just flown over the water and back, and that was all. There was no trouble, no worry or sensations to speak about. That had ceased from the moment the machine left the starting rail. Any anxiety that there might be was rather in the preliminaries—waiting for suitable weather, tuning up the engine, seeing to wires and spars, and all such other matters. These constituted the only worries of the undertaking. The public, however, know how to value such services in a great cause as those performed by Mr. Rolls, and in spite of his belittlement of his own work, we think the receptions which are likely to be accorded to this pioneer upon every occasion when he shall appear in public, whether as aviator or otherwise, will give very audible voice to the appreciation in which he is held. It might be a fitting and graceful act if a memorial stone were to be erected upon the spot of departure and return, in like manner to that marking the point of alighting by M. Blériot. That there is a strong feeling abroad in this connection there may be instanced a donation towards this object received by the Mayor of Dover from a working man, who takes for granted that such a movement will be the natural corollary to Mr. Rolls' flight.

It will be seen from the official notices that the Gold Medal of the Royal Aero Club has been conferred upon Mr. Rolls for his Channel flight.

THE WILLOWS DIRIGIBLE AT CARDIFF.

LONDON was not the only British city which was traversed by airship on Saturday morning, as Cardiff was honoured in a similar way, although in the latter case the trip was quite a short one compared to that of the military airship "Beta." Starting from the East Moors at ten minutes to seven, Mr. Willows headed his miniature airship for the City Hall, which was reached in seven minutes. The Clock Tower was encircled once, and then the vessel was brought to land in the open space just by the Tredegar Statue.

After a stay of about half an hour in the Cathays Park, a restart was made for home, and within an hour from the time of starting the airship was safely docked again.

This airship is quite a small one, the gasbag being only 82 feet in length, while its greatest diameter is 22 feet. A feature of the mechanism is the arrangement by which the two propellers can be so adjusted that their force is utilised in raising or lowering the dirigible. These propellers are made of wood, are 6 ft. in diameter, and are driven by a 30-h.p. J.A.P. motor.

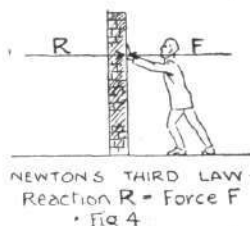
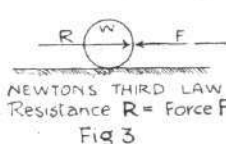
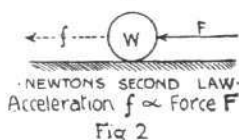
HOW AN AEROPLANE LIFTS.

IN our first article entitled "How Men Fly," which appeared in our issue of February 6th last year, we drew attention to the leading phenomena associated with the flight of an aeroplane, and just as that article may be taken as an account of what happens, so may this be considered as a continuation embodying an explanation of why it happens.

The theory associated with the lifting power of an aeroplane is one which puzzles a good many people who have not hitherto had occasion to study the laws of fluid dynamics, and although the subject is one which has been dealt with in FLIGHT before, we purpose going into the matter again from a different point of view at the request of a correspondent whose letter appears in this week's issue. Mr. Hickman asks how it is that the deck of an aeroplane travelling very nearly edge on to the air is subjected to a pressure reaction much about the same as he calculates it would sustain if set vertically across a wind of the same speed. Simple and straightforward as Mr. Hickman's question has the appearance of being, it nevertheless

requires a force to change a state of rest to a state of motion, or to change a state of motion in one direction to a state of motion in the other, or to change a state of motion to a state of rest. Now air having mass to the extent of $\frac{1}{8}$ th lb. per cubic foot (air weighs approximately 13 cubic ft. to the lb.) is a body within the meaning of Newton's law, and if we assume that the air is in a state of rest to begin with, then it will require a force to set that air in motion, and by Newton's third law this force will experience an equal and opposite reaction.

It is this third law of Newton which is perhaps the most elusive of all, because it is so thoroughly obvious in certain cases, and yet apt to be not apparent in others. No one, for instance, could imagine himself pushing against a wall (Fig. 4) without experiencing this equal and opposite reaction of which Newton speaks, but when it comes to dealing with inanimate forms, and especi-



less covers a very wide field, and makes it necessary to evolve a satisfactory answer step by step.

The starting point in all dynamical problems is Newton's laws of motion, and for the benefit of those who have forgotten their physics it can hardly be out of place to recall the wording of these three simple rules, which are of absolutely universal application throughout the whole sphere of physical existence:—

Newton's Laws of Motion.

Law 1. (Law of Inertia). Every body continues in a state of rest, or of uniform motion in a straight line, except in so far as it may be compelled to change that state by external force acting on it (Fig. 1).

Law 2. (Law of Force and Motion). Rate of change of momentum is proportional to the force which causes it, and takes place in the direction of the force (Fig. 2).

Law 3. (Law of Reaction). To every action there is an equal and opposite reaction (Fig. 3): or when two bodies mutually act upon each other the momenta developed at the same time are equal but opposite in direction.

Reading through these simple statements, the natural mechanical mind grasps them at once as obvious, but that by no means implies that the mind is alive to the significance of their importance and use as laws. To say that such and such a thing is so in a case where it is otherwise apparent, is one thing, but to say that the same thing must be so in a case when appearances are to the contrary, is a very different matter altogether, and as the theories which enthusiastic inventors daily thrust before our notice only too often contain violations of Newton's laws, we cannot too strongly urge upon those who are making a study of the science of flight to thoroughly absorb their meaning to the last word.

The Basic Reason.

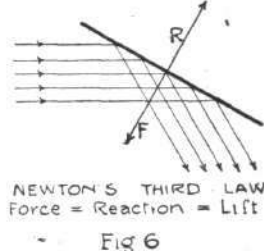
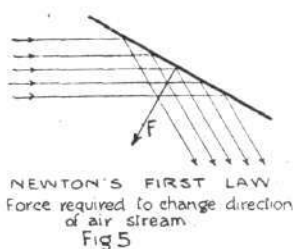
They constitute the sole and complete reason, so far as it is possible to give a reason for natural phenomena, as to why an aeroplane can exert a lift, and is therefore capable of flight. Newton's first law states that it

ally when they are working in a somewhat abstract "body" like the air, there is, perhaps, not always quite the same readiness to appreciate the force and its opposite.

The Wedge Action.

An aeroplane—which for the moment we will assume consists of a simple flat plate—pushed horizontally through the air with its leading edge tilted slightly above the level of the rear edge so that the attitude of the plane is slightly inclined, must obviously either push the air along in front of it as the scavenger's squeegee sweeps the liquid mud from a dirty street, or must press the air downwards beneath it like a wedge forcing its way through some lightly-resisting substance. A matter of fact, it is the latter point of view which is correct, and the analogy of the wedge is very often a useful way of bringing aeroplane problems down to a concrete form.

Once having established that the air is set in motion at all—and that is a matter which is susceptible of very easy proof for it is only necessary to experiment with a

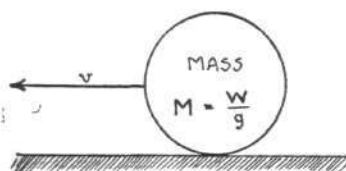


piece of cardboard in order to make a draught in the required manner—it is at once necessary to apply Newton's first law, and to say that this change of state needed a force to bring about (Fig. 5), and further that this force by Newton's third law, experienced an equal and opposite

reaction (Fig. 6). It is this reaction which constitutes the lift of an aeroplane, and the argument which we have thus advanced step by step is that which shows fundamentally why aeroplane flight is possible.

Momentum.

It still remains to investigate the quantitative side of the question however, and it is this aspect of the case which constitutes our correspondent's real difficulty. At first sight there appears to be no difficulty in the matter at all, because Newton's laws themselves distinctly provide the necessary link to enable real forces to be calculated. The second law states that the rate of change of momentum



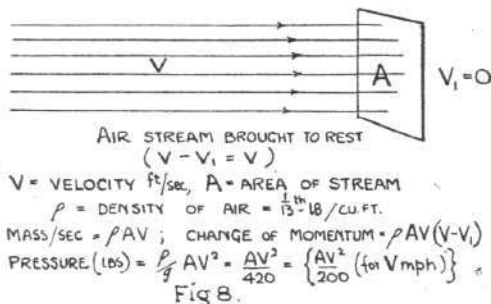
$$\text{MOMENTUM} = Mv = \frac{Wv}{g}$$

Fig 7.

is proportional to the force causing it, and the third law makes the reaction equal and opposite to the force, hence it is a direct deduction that the lift of an aeroplane is proportional to the rate of change of momentum communicated to the air. The momentum of a moving body is by definition the product of its mass multiplied by the velocity (Fig. 7); and if the air is at rest to begin with, the latter factor will be given by the downward velocity imparted to the air by the wedge-like passage of the aeroplane through it. Air possesses mass to the extent of $\frac{1}{13}$ lb. per cubic foot, consequently if the volume of air swept downwards per second is also known, the upward reaction can be immediately stated by multiplying together its mass and acceleration, and dividing by gravity if the pressure is required in lbs. instead of absolute units. It should be observed that the mass of air dealt with per second is like acceleration a function of the flight velocity, whence the air pressure becomes proportional to V^2 .

Taking the case of a normal plane (Fig. 8) as a basis, the application of the Newtonian method results in the

well-known formula which gives the pressure in lbs. per square ft. = $\frac{V^2}{200}$ where the velocity is here expressed in miles per hour. It is equally well known that this formula, which is theoretically accurate, is practically inaccurate, and in order to appreciate why this is so, it is necessary to bear very clearly in mind the exact hypothesis to which it applies. In the case of a normal plane, and for the formula cited above, the hypothesis



supposes that the plane constitutes an obstruction of such a nature as to bring the air-stream to rest instantaneously at the rate of its velocity; that is to say, a wind blowing at V ft. per second upon a plane of A square ft. area, is eaten up, so to speak, at the rate of AV cubic ft. per second. The mass of air striking the plane is $\frac{AV}{13}$ lbs. per second, and its velocity is reduced to zero at the rate of V ft. per second, whence the change in its momentum, or in other words its force in lbs., is equal to $\frac{AV^2}{13g} = \frac{AV^2}{420}$ which is the same formula as that previously mentioned except that the velocity is here stated in ft. per second.

(To be concluded.)

BOOK REVIEWS.

The Art of Aviation.

By R. W. A. BREWER.

(Cresby, Lockwood and Son. 10s. 6d. net.)

It does not exactly meet the case to speak of this book as a text-book on aeroplane construction and design for it has a lighter and somewhat more popular side that is intended to give it a wider sphere of interest, even if at the same time it is apt to be irritating to the strict student of technical detail. The chapters in Mr. Brewer's work are seventeen in number, and their titles give a fairly comprehensive idea of the scope of the treatise.

The first relates to a comparison between monoplanes and biplanes, and therein will be found a paragraph to which some exponents of flight may take exception. It reads as follows: "Learning to fly with a monoplane is undoubtedly a more simple matter than with a biplane of the Wright type, the former, when of the Blériot type, is much lighter, and its inertia in flight is therefore less. Successful beginners of the monoplane school vastly out-

number those who are learning to fly biplanes, and the time taken during the process is generally much shorter." We hold no brief for either type of machine, and very possibly what Mr. Brewer says is correct, but, on the other hand, we think it only proper to point out that we have had occasion to see and chronicle more actual flying with biplanes than with monoplanes in England up to the present time.

Among the other chapters are those relating to "The flight engine and its design," wherein is included an excellently illustrated description of the famous Gnome rotary engine. A couple of chapters are devoted to propellers, and two others to methods of construction and details of manufacture. Gliding and its advantages as a road to flight receive attention, and there are some very interesting illustrations in the chapter devoted to future development of high-angle guns constructed in Germany for attacking dirigibles. The concluding chapter is devoted to a glossary of terms, wherein we are pleased to observe that the majority of those adopted in the first instance in this journal have been used. It will tend to simplify matters considerably in the future if these terms pass current among aviators.

Appointment Kept by Aeroplane.

ON Wednesday afternoon the members of the International Conference on Aerial Navigation now sitting in Paris paid a visit to Issy, at the invitation of the Aero Club of France, and Count Lambert, who had been asked to attend, determined to fly over from Villacoublay, about 9 kms. from Issy. Rising quickly to a height of about 300 metres, Count Lambert flew to Issy in about

8 mins., and on arriving there circled round the ground twice before coming to rest, landing eventually right in front of the delegates. At their request he made another trip, flying round the military camp, and on his descent was warmly congratulated by all present. Previous to this the delegates had witnessed demonstrations of the Blériot machine by MM. Leblanc, Morane and Mollien, while M. Obre, on his machine, and M. Clement, on his biplane, were also flying.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting.

A MEETING of the Committee was held on Tuesday, the 7th inst., when there were present:—Mr. Roger W. Wallace, K.C., in the chair, Mr. Griffith Brewer, Mr. Ernest C. Bucknall, Col. J. E. Capper, C.B., R.E., Mr. John Dunville, Mr. V. Ker-Seymer, Mr. C. F. Pollock, Hon. C. S. Rolls, Mr. A. M. Singer, Mr. Stanley Spooner, and Harold E. Perrin, secretary.

New Members.—The following new members were elected:—

Dugald Clerk.	Mrs. O'Hagan.
Reginald W. Crowley.	W. R. Williams.
Miss Daphne Fitzgeorge.	

Hon. C. S. Rolls' Cross-Channel Flight.—It was unanimously resolved that the gold medal of the Royal Aero Club be awarded to the Hon. C. S. Rolls for his flight from Dover to Calais and back on the 2nd inst.

Flight of the Dirigible "Beta."—It was unanimously resolved that a letter of congratulation be sent to the Balloon School, Balloon Factory, and Col. J. E. Capper, C.B., R.E., on the recent flight of the army dirigible "Beta" from Farnborough to London and back.

Aviators' Certificates.—The following aviators' certificates were granted:—

No. 9. S. F. Cody.
No. 10. Lieut. L. D. L. Gibbs.

Technical Committee.—The Minutes of Meeting held on the 10th May, 1910, were adopted on the motion of Mr. Griffith Brewer.

Balloon Committee.—The minutes of meeting held on April 18th, 1910, were adopted on the motion of Mr. C. F. Pollock.

Competition Rules Committee.—The minutes of meeting held on April 4th, 1910, were adopted on the motion of Mr. V. Ker-Seymer.

Bournemouth International Aviation Meeting. *Clerks of the Course.*—The committee appointed the following Clerks of the Course for the Bournemouth International Aviation Meeting:—

Mr. Ernest C. Bucknall, Mr. John Dunville, Maj. F. Lindsay Lloyd.

Timekeepers.—The committee appointed Mr. A. V. Ebbelwhite and Mr. T. D. Dutton Timekeepers for the Bournemouth International Aviation Meeting.

Height Prize.—The committee decided that the recording for the height prize should be carried out by the Officers of the Royal Engineers.

Medal of Merit.—The Royal Aero Club will award a medal of merit to the British aviator who attains a height of 1,000 ft. in the shortest time.

The aviation committee of the Bournemouth Centenary Fêtes attended the meeting, and discussed the arrangements to be made for the convenience of the members of the Royal Aero Club at Bournemouth, which arrangements will be announced later.

Wolverhampton Aviation Meeting.—The draft programme was considered, and with slight alterations approved. The request of the Midland Aero Club that the Royal Aero Club should nominate one of the Clerks of the Course was considered, and Sir Richard A. S. Paget, Bart., was appointed. A letter from the United Counties Bank, stating that the sum of £3,000 for prize-money had been lodged with them, was received. The Royal Aero Club will award a medal of merit in connection with the meeting.

Bournemouth International Aviation Meeting.

Closing of Entries.—Members are reminded that the entries for the international aviation meeting to be held at Bournemouth from July 11th to 16th, 1910, close on the 23rd inst. Intending competitors should lose no time in obtaining their aviators' certificates in accordance with the conditions laid down by the Federation Aéronautique Internationale. A special office has been opened at 166, Piccadilly, London, W., where all information will be supplied.

Hotel Accommodation.—Owing to the large number of applications for accommodation at the Hotel Burlington, only a few rooms are now available, and members desirous of securing same should make early application to the Secretary of the Club.

Sailor Aeronaut Race.

An invitation has been received from the Motor Yacht Club, whose headquarters are at the yacht "Enchantress," anchored off Netley Hospital, to the members of the Royal Aero Club to compete in a sailing race on Saturday, June 18th, 1910.

The start will be from the "Enchantress," and the 18-ft. one design sailing boats belonging to the Motor Yacht Club will be used for the race.

Prize and souvenir to the crew, £10. Presented by the Hon. Mrs. Assheton-Harbord.

Members of the Motor Yacht Club and the Royal Aero Club will be eligible subject to the following qualifications:—

Those who are members of both Clubs, *i.e.*, of the Motor Yacht Club and of the Royal Aero Club.

Members of either Club who have made at least one ascent in a balloon or aeroplane.

Ladies, whether members of either Club, and who have made at least one ascent in a balloon or aeroplane.

The one design sailing boats have a length of 18 ft., beam 5 ft. 9 ins., depth 2 ft. 9 ins., sail area 202 sq. ft.

The following letter has been received from the Motor Yacht Club:—

"The Secretary, The Royal Aero Club, 166, Piccadilly, W.

"DEAR SIR,—The Flag Officers and Committee of the Motor Yacht Club present their compliments to the Members of the Royal Aero Club and will be pleased if they will consider themselves Honorary Members of the Club on Saturday, June 18th, the date fixed for the third Annual Sailor-Aeronaut Race.

"Yours faithfully,

(Signed) "W. A. JUPP, Secretary."

Entries are to be sent to Col. W. A. Jupp, Secretary, Motor Yacht Club, "Enchantress," Netley Abbey; or Harold E. Perrin, Secretary, Royal Aero Club, 166, Piccadilly, London, W. Entries close at noon on the day of the race.

A train leaves Waterloo at 10.15 on Saturday, June 18th, arriving Southampton West at 11.53. The club motor launches will leave the Town Quay at 12 o'clock and 12.45, taking members to the "Enchantress" in time for lunch.

Balloon Race at Hurlingham.

THE race for the Hedges Butler Challenge Cup will take place at Hurlingham Club, Fulham, S.W., on Wednesday, June 22nd, 1910, at 3 o'clock. Members desiring to compete are requested to advise the Secretary not later than 5 p.m. on Friday, June 17th, 1910. Entrance fee 10s.

The rules governing the competition can be obtained from the Secretary.

Members of the Royal Aero Club will be admitted to the Hurlingham Club free, on presentation of their Royal Aero Club membership cards.

Members of the Royal Aero Club can obtain special tickets for the admission of their friends, who are not members of the Royal Aero Club, to Hurlingham, from the Secretary of the Royal Aero Club, price 10s. each.

The Club balloon, "Aero Club IV," will follow the race. Members wishing to make the ascent are requested to notify the Secretary at once. The fee will be £5 per person, and the three seats available will be allotted in order of application.

Library.

"L'Eclaireur de Nice" has kindly presented the Royal Aero Club with a handsome album of photographs taken during the recent Nice aviation meeting, bearing a special dedication to the Royal Aero Club.

Picture.

Mr. Thomas Winch has presented to the Club a framed picture from *Punch*, 1843, "Punch's Aerial Courier, the Gull."

Claude Grahame-White Testimonial Fund.

Donations received up to Tuesday, June 7th, 1910.

Amount previously acknowledged	£	s.	d.
A. Mortimer Singer	10	10	0
Savoy Hotel, Ltd.	6	6	0
T. H. Hewitt	2	0	0
Jacques Balsan	1	19	6
Miss Janie Whittaker	0	5	0

£1,787 18 5

166, Piccadilly.

HAROLD E. PERRIN,
Secretary.

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

(NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of FLIGHT, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.)

Aeroplane Building and Flying Society.

A PRELIMINARY meeting of the above society was held on Monday, 6th inst., when draft rules were agreed upon. The first formal meeting will be held at 11, Westbourne Square, Paddington, W., on Wednesday, June 15th, at 8.30 p.m. Agenda: enrolment of members, consideration of draft rules, election of committee and hon. officers, &c.

Readers are reminded that the objects of the society are to enable all its members—

1. To construct full-sized flying machines.
2. To fly same when completed.
3. To make practical tests of their individual ideas.

All desirous of participating in the above are invited to attend the meeting, and are requested to notify their intention of so doing to H. A. Myers, Hon. Sec. (*pro. tem.*), 22, Park Road, West Dulwich, S.E.

Aviation Association of Ireland (HOTEL METROPOLE, DUBLIN).

ON Tuesday next, the 14th inst., at the Royal College of Science, Dublin, Mr. H. G. Fergusson will read his paper on "The Construction and Flying of an Aeroplane." This paper had to be postponed owing to his having sustained a slight strain while practising. He has quite recovered now, and has consented to come down on the 14th and relate all his experiences. He will start off by describing the methods of chassis construction and framework bracing, suspension, and engine fitting. He will then deal with engines and propellers, &c. Method of constructing the machine, finding balance, learning to steer, &c., will all be gone into, and should all go to make a most instructive and interesting lecture. The meeting will be open to the public, the chair being taken at 8 o'clock.

The Association regret to have to announce that the model flying competition, which was to have been held under their auspices some time this month, has had to be put off through lack of sufficient entries.

Kite and Model Aeroplane Assoc. (27, VICTORY RD., WIMBLEDON)

AN important series of competitions for kites and model aeroplanes have been arranged to take place at the Aerial League rendezvous at the Crystal Palace on Wednesdays during June and July, commencing on Wednesday next. Good prizes are offered, and full particulars can be obtained from the hon. sec., Mr. W. H. Akehurst, at above address.

Sheffield and District Aero Club (36, COLVER ROAD).

At a meeting of the above club held on the 1st inst., it was decided to get a full-sized aeroplane in hand at once. With this in view a subscription list was opened, and amongst the members present there was a splendid response, both by cash and by promises of various parts. The machine will be a biplane of a well-known and successful type.

The membership continues to increase very satisfactorily, and the secretary asks all members to attend a special general meeting arranged for Wednesday evening next, 15th inst., 8 p.m., at the club's works, 26, Paradise Street, Sheffield (members only.)

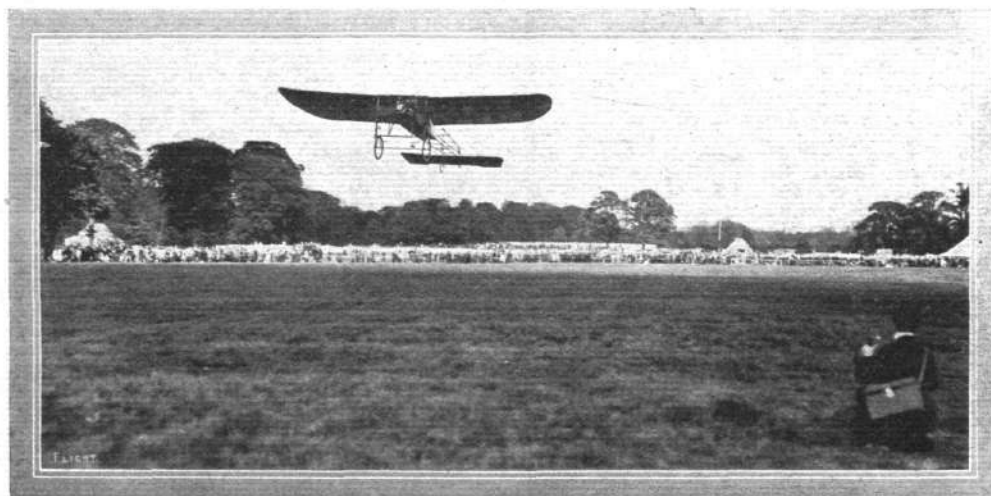
Yorkshire Aero Club (63, ALBION STREET, LEEDS).

AN exhibition of model aeroplanes and a series of competitions for them have been arranged for Saturday next, 18th inst. They will be held at the Headingley Grounds, Leeds. Silver and bronze medals will be given in the various classes, and the club certificate of merit will be awarded to any model flying over 50 ft. Full particulars can be obtained from Herbert E. Harwood, 73 and 75, Albion Street, Leeds.

FLYING IN SCOTLAND.

DURING the three closing days of last week, Mr. J. Radley gave a series of exhibition flights on his Blériot monoplane at Pollok, in some grounds lent by Sir John Stirling Maxwell. The flying was arranged in connection with a fête organised with the object of aiding the funds of a local chapel. On the 2nd inst., Mr. Radley made a series of long jumps, and in view of the cramped nature of the flying grounds and the surrounding trees, did not attempt any long flight. He however, showed the capabilities of his machine, and the trials were watched by a large and interested crowd, who, however, hampered the aviator's movements by crowding round the machine. On one occasion, in negotiating an eddy of wind, Mr. Radley was carried over the heads of the spectators, who fled in all directions, and the aviator in en-

deavouring to avoid them only just missed smashing his machine. On the following day the wind was too strong for any flying to be done, and although the conditions were little better on Saturday Mr. Radley made a series of short flights against the wind. During the afternoon the proceedings were enlivened by a series of experiments with a man-carrying glider belonging to the Glasgow Model Aero Club. Late in the afternoon while making a trip Mr. Radley met with a mishap. He was making a flight, when a sudden gust of wind drove him out of his course, over the crowd. In order to avoid the crowd Mr. Radley had to make a sudden turn, and in his hurried landing his monoplane suffered considerably, the chassis being twisted and one of the planes buckled. Fortunately Mr. Radley escaped unhurt.



FLYING IN SCOTLAND—FIRST PUBLIC FLIGHTS.—Mr. Radley giving exhibitions on his Blériot monoplane at Pollok last week.

BRITISH NOTES OF THE WEEK.

Closing Date for Wolverhampton Entries.

THOSE aviators who are thinking of taking part in the forthcoming meeting at Wolverhampton are reminded that the entries close to-day (Saturday) and should be sent to the Secretary of the Midland Aero Club, Grand Hotel, Birmingham.

Cardiff Flying Meeting.

CONSIDERABLE enthusiasm has been evoked by the preliminary arrangements in connection with the proposed four days flying meeting to be held at Cardiff from August 24th to 27th. Several influential local gentlemen are taking an active part in the movement, and already arrangements have been made for the use of the Ely racecourse, which has been approved by the Royal Aero Club subject to certain alterations. It is hoped that shortly a public meeting will be arranged, when an appeal for financial support will be made. In the meantime the secretarial arrangements are in the hands of Mr. H. C. Jobson, Llanishen, Cardiff.

The Baron de Forest Prize.

As some misapprehension seems to exist as to the conditions of the Baron de Forest prize, it should be noted that the prize is open until December 31st next, when the prize of £4,000 will be awarded to the aviator who on a British machine has flown the longest distance from England to the Continent in one stage. It is not merely to be given to the first man who flies across the Channel on a British machine, as some people seem to think.

Grahame-White at Ranelagh.

UNDETERRED by a strong breeze, Mr. Claude Grahame-White made a short flight from Ranelagh, on his Henry Farman machine, on the 1st inst. Rising at 8 o'clock, Mr. Grahame-White made a wide detour over Putney, and landed after being in the air for seven minutes. Two flights were made on Saturday, the first lasting five minutes, during which Mr. Grahame-White made four wide sweeping circles over Barnes. In the second trip Mr. Grahame-White followed the river for some distance, passing over Hurlingham, and returning across Wimbledon Common, landing in the presence of a very distinguished company, after a twenty minutes' trip.

And at the Crystal Palace.

ON Tuesday Mr. Grahame-White shifted his venue to the Crystal Palace, where he made a couple of trips from the flying enclosure in connection with the "Rendezvous" arranged in the Palace grounds by the Aerial League. Both flights were short, each only being of about five minutes' duration. In the first he flew towards Penge, and after making a couple of wide circles returned to the Palace grounds and planed down to his shed from a height of 60 ft. The second trip was confined to the grounds, and the thousands of people assembled on the terrace had the experience of seeing the machine pass over them. Later in the day the machine

was dismantled and packed for its journey to Halifax, where Mr. Grahame-White had arranged to make some flights this week-end.

Mr. A. V. Roe at Brooklands.

ONE of the most successful trips he has yet made with his triplane, was carried out by Mr. A. V. Roe on Thursday of last week. The machine remained aloft for some twenty minutes, and although Mr. Roe did not fly very high, he turned very sharply once or twice. Several circuits of the flying ground were made and the machine answered her helm with remarkable ease.

Mr. Handley Page at Barking.

SEVERAL short but successful flights were made by Mr. Handley Page on his monoplane at his flying grounds at Barking on the 26th ult., and Mr. Thiersch, who made a flight of three-quarters of a mile at Belvedere on the same day, used a machine which was built by Mr. Handley Page at Barking.

A Biplane at Bath.

THE Voisin biplane with which Mr. Ernest Pitman has been experimenting in the Isle of Sheppey for some time has now been taken to Bath, where Mr. Pitman and Mr. Theodore Beach propose making trials with it over the plateau at Lansdown, close to the racecourse. An aeroplane shed has been erected there by Messrs. Harbrow for the accommodation of the machine.

Spare Parts for Blériot Monoplane.

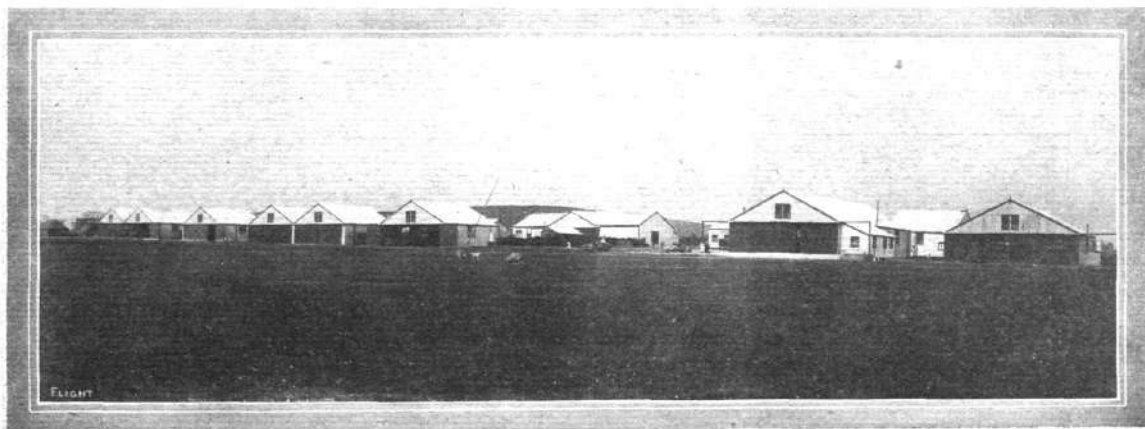
MESSRS. BLÉRIOT, LTD., inform us that they have arranged to keep in stock at their Long Acree showrooms a quantity of spare parts for the Blériot cross-Channel type monoplane. This stock will be comprehensive in detail, and under ordinary circumstances they will be able to replace almost any part of the machine by the next train following receipt of an order by telegram.

A British-built Farman.

WE hear that Messrs. A. V. Roe and Co., Manchester, have received another order for a Farman-type aeroplane. In fact, this firm is being kept very busy in every department. They have been compelled to add very considerably to their range of sockets and other accessories and parts, as their clients are making so many different types of aeroplanes. We understand that the demand for their aeroplane wheels continues to increase as fast as they can turn them out.

Tellier Monoplanes in the U.K.

THE exclusive rights for the Tellier monoplane have been secured by Mr. D. Lawrence Santoni, and anyone who is thinking of purchasing one of these machines can obtain from him at 10, Coburg Place, Hyde Park, W., a little brochure giving particulars of the machine and its performances, as well as the terms of sale, &c.



THE BRITISH HOME OF FLIGHT AT EASTCHURCH (ISLE OF SHEPPEY).—Some idea of the imposing character of the Royal Aero Club's flight ground at Eastchurch is conveyed by the above view. In the centre of the picture is the new Short factory—where history is rapidly being made—and fronting upon the trial ground itself are the numerous sheds where so many of the leading British aviators now house their machines.

CONTINENTAL FLIGHT MEETINGS.

Anjou Flying Meeting.

COMMENCING on Friday of last week a very successful four days' meeting was held at Anjou, concluding on Monday with a cross-country race from Angers to Saumur. On the opening day the British aviator, Capt. Dickson, on his Henry Farman machine, secured two of the daily prizes, that for the total distance, his total being 46½ kiloms., while the longest single flight was by Capt. Dickson, 36 kiloms. 355 metres. Balsan was the only other one to make a long flight, and he covered 15 kiloms. on his Blériot. On Saturday the biplanes over were two Sommers piloted by Legagneux and Paillette, and two Blériots with Aubrun and Balsan at the helms. Legagneux made the longest flight of 92 kiloms., while Paillette was second with 84 kiloms., and Aubrun third with 31 kiloms. Martinet and Dickson were busy repairing the wheels of their machines which had been damaged in practice. The proceedings were cut short by heavy showers of rain towards the evening. On Sunday, Daniel Kinet, who had arrived overnight with his Henry Farman machine, was trying it when he buckled a wheel. The other two Farmans and the two Sommers were out, however, each making long flights. Martinet and Paillette fought out a splendid duel, which ended in favour of the former, who covered 168 kiloms. before coming to rest, while the Sommer man came down at 125.9 kiloms. Legagneux's longest flight was 97.8 kiloms., while Capt. Dickson's best was 17.155 kiloms.

The event of the meeting was, of course, the cross-country race, arranged for the last day. Four starters lined up, and when the word to go was given Martinet was off at once. He was followed by Mumm on an Antoinette, but he stopped in a few yards. Legagneux was the next away while Capt. Dickson brought up the rear, he being late in starting owing to a mishap with the rail of his machine. The three biplanes landed safely at Saumur although Capt. Dickson was nearly submerged in a ditch. Their times for the 42 kiloms. were:—

Martinet (the winner)	31 mins. 35 secs.
Legagneux	36 " 35½ "
Capt. Dickson	44 " 53½ "

Earlier in the day Capt. Dickson had beaten the world's record for a passenger flight by keeping aloft for 2 hrs. and traversing

98.75 kiloms. While competing for the height prize Legagneux got up to 238 metres, with Capt. Dickson second with 144 metres.

Meeting at Mondorf-Bad.

ON Sunday last a meeting commenced at Mondorf-Bad in Luxemburg, when Christiaens on a Henry Farman, Petrowski on a Sommer, and Mollien on a Blériot, made several short flights. Baron de Caters with his Voisin, and Barrier with a Blériot, were also entered, but had damaged their machines during the preliminary tests. On Monday morning the weather was very calm and gave promise of a fine day. When the time for starting came, however, the wind became very boisterous, and only the two biplanes were taken out. Christiaens flew for just over 19 mins., while Petrowski was up for 16 mins.

The Budapest Meeting.

WITH a record entry, attracted without doubt by the huge prize fund, of thirty-six, the great majority of whom have made their mark in aviation, the fourth International meeting of the year, which opened at Budapest on Sunday, promises well. On the opening day the weather was all that could be desired, and Paulhan commenced proceedings with a record performance. He literally leapt into the air after a preliminary run of only 6.8 metres, which is believed to be a world's record. Efimoff was a good second with 10 metres. The best flying total for the day was by Efimoff, whose cumulative time in the air was 1 hr. 34 mins., while N. Kinet, also on a Henry Farman machine, was credited with 59 mins. 32 secs., and Pischhoff, on a machine of his own design, with 48 mins. 25 secs. Paulhan made the longest flight of the day, just over half an hour. Short flights were also made by Wagner and Hanriot, on Hanriot monoplanes, Bulovacie, on a Sanchez-Besa, and Wiencziers, on an Antoinette. Competing for the height prize, Frey, on his Sommer biplane, went up to 230 metres, and Chavez to 200 metres. On Monday the wind somewhat interfered with the flying, but there were eight aviators aloft at various times. The longest flights were by N. Kinet, 1 hr. 10 mins.; Efimoff, 1 hr. 5 mins.; and Wagner, 52 mins.; while Efimoff went up to a height of 255 metres.

FOREIGN AVIATION NEWS.

Hanriot Flies to Chalons.

A REMARKABLE performance was made by young Marcel Hanriot, ætæ 15, on Friday of last week, when he flew from the aviation grounds at Betheny, near Rheims, to Mourmelon. The distance is about 35 kiloms. and the Hanriot monoplane traversed the distance in about as many minutes. On the previous day the young aviator was flying over Rheims.

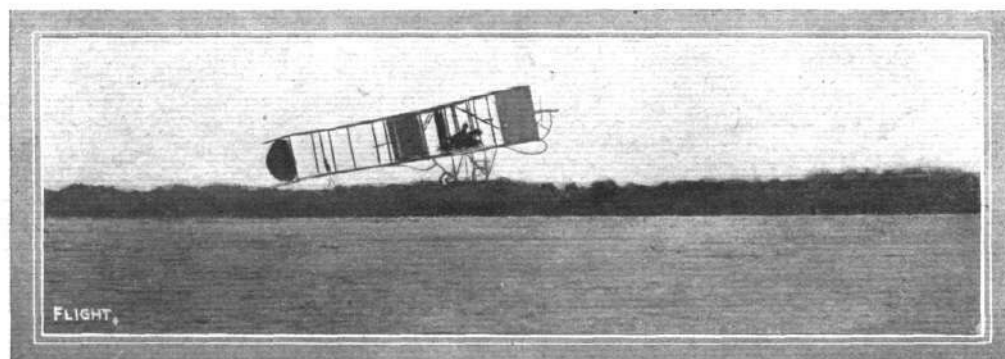
And has an Impromptu Race Home.

ON Tuesday he determined to fly back again, and started about 6.15 p.m. As he did so M. Niel also went up in his Voisin and commenced the pursuit, while Lieut. Fequent, who, on his Farman, accompanied by Capt. Marconnet, at the same time rose, likewise shaped a course for Rheims. The three machines flew in company

to Betheny, where the first two landed in the Hanriot grounds, while the military flyers went on, over Rheims, and then flew back to Chalons without a stop. The outward journey was made in about 20 minutes, and Marcel Hanriot won the impromptu race. Lieut. Fequent's flight lasted 1 hour 37 minutes, during which 98 kiloms. were covered.

Capt. Burgeat Flies for an Hour.

CAPT. BURGEAT, one of the military pupils who has attained considerable proficiency with the Antoinette monoplane, made a splendid performance on Saturday last when he flew for five minutes over the hour. During this trip the aviator did not keep to the bounds of the flying ground at Mourmelon but launched out over the town and the country round, as well as over Bouy.



Maurice Clement flying at Lamotte-Breuil on his Clement-Bayard biplane.

Maurice Clement at Issy.

WITH his biplane, Maurice Clement has been meeting with a good deal of success, and on the 2nd he made the last two flights for his pilot's certificate. Later in the day he made four flights with passengers and then changed over to the "Demoiselle" on which he flew for some minutes. He was also flying well on Saturday last on his biplane.

Duray Out of Danger.

MOTORISTS as well as aviators will be pleased to hear that Duray, who met with a bad accident at Verona recently, is now out of danger, and is making as rapid progress as can be expected.

Maurice Farman Has Trouble in a Clover Field.

AN alarming accident occurred to Mr. Maurice Farman while practising at Buc on Sunday last. He had been flying for twenty minutes with M. Georges Besancon, Secretary of the Aero Club of France, when, as it was getting dark, he decided to land. By a strange mischance he chose for a landing-place a field in which clover was growing, and this becoming entangled in the wheels brought the machine up with a jerk, causing it to pitch forward. The two occupants were thrown out, and both were rendered unconscious. Mr. Farman was badly bruised, while M. Besancon had the radius bone of one arm broken and received a cut behind the ear from a stay-wire. He is, however, making satisfactory progress.

The Henry Farman Monoplane.

ON the 2nd inst. Mr. Henry Farman was out testing his new monoplane at Mourmelon when his best flight was for two circuits of the flying ground. Although the machine was only two metres above the ground it manoeuvred quite easily and is said to have carried a load equal to 22 kilograms per sq. metre of surface. Further trials were also made last Saturday with equal success.

Doings at Mourmelon.

The Farman School.—Tetard has been kept very busy during the last few days giving lessons to Gerard, Devaux, Blondeau, Dery, Jane Hervieu, Kammerman, and on the 2nd inst. he flew for 1 hr. 10 mins. at a height of 500 metres. Three times he passed over the two Mourmelons, Livry, Buoy, and the Vadenay farm, then landed by planing down from a good height. Madame Franck has made splendid progress, and on the last day of May she took up Miss Bird, and together these ladies flew for some time over the surrounding country. On the same afternoon Lieut. Fequent was up with Capt. Marconnet for 50 mins., while Lieut. Bellenger was in the air for 40 mins. On the 2nd inst. Didier was out for 45 mins., Blondeau at his third lesson kept on for 30 kiloms., while Fischer was aloft for half an hour. Among the military pupils, Lieut. Sidot flew for an hour, while an Italian marine officer, Commandant Filippi, at his second attempt traversed a distance of 10 kiloms. On Friday, Weyman, at his third lesson, went for an excursion over Buoy, while Lieut. Bellenger was flying for just on an hour over the country. A fine flight of 40 minutes was made by the Italian, Lieut. Savoia, on Saturday. He rose to a height of 800 metres and descended in a gliding flight, doubtless his lengthy experience with the Wright type of flyer accounting for the easy way in which he has acquired control of the Henry Farman type.

The Antoinette School.—The various pupils, including Mdle. Marvingt, Count Robillard, Celinsky, Thomas, Komaroff, Leclerc, Goffin, Cure, Daroginsky, and Gobe, have all made good flights during the last few days under the direction of Labouchere and Wachter. On the 1st inst. Wachter received two machines, and by way of testing them made a flight of 20 mins. on each one. On the 3rd inst. Labouchere made a 20 min. trip at a height of 300 metres, during which he passed over Buoy, and he repeated this on the following day.

Other Flying.—At the Voisin school Albert Niel has made many good flights with his new machine fitted with ailerons, and in some he has been accompanied by his wife. On Monday he flew for 20 mins. over the country with a passenger. Bunau-Varilla has also made successful trials with a new racing Voisin, while De Ridder, at his second trial on a machine of the new type, on Monday flew for half an hour.

Using a Koehlin machine, a new aviator, Sambuy, has made several good flights in a straight line, while Duval, on the Saulnier monoplane, continues to meet with success. Others who made good flights during the week-end were Dufour, on his Blériot, and Nieuport, on his Nieuport monoplane, both of whom made the necessary tests for their *pilote-avateur* certificate.

At the Maurice Farman School.

FOR his first trial trip in charge of his Maurice Farman machine, Maurice Tabuteau, on the 1st inst., took up a fellow pupil, Brandel, and flew across country over Buc, La Minière,

Guyancourt and Villavoy, making a circuit of about 15 kiloms. On the following day he made three trips with passengers, while Maurice Farman also carried out a couple of passenger flights.

Sommer Moves to Chalons.

ON the 1st inst. Verstraten flew, on his Sommer biplane, for a quarter of an hour at Mouzon, while Vallon traversed 5 kiloms. Afterwards M. Roger Sommer, accompanied by his pupils, left for Chalons, where the Sommer school will be conducted in future.

Doings at Pau.

THERE are still a few Blériot pupils at Pau, including Lieuts. Mathiewitch and Yence, as well as Melly, Wlinsky and Diotinsky, who are making practice flights almost every day; but the Antoinette and Wright schools have now closed until next winter. The last flight at the latter was on the 31st ult., when Gustav Gasnier was up for a 10 minute flight with a Wright biplane fitted with a rear tail.

Monoplanes at Issy.

THE flying ground at Issy seems to be a favourite one with exponents of the monoplane type of machine, and during the past week, in addition to the Blériot machines, Vendemme, Hébert, Lacointe, and Soules have been busy on Zenith monoplanes. Obre on the machine of his own design, Darioli on a Saulnier single-decker, and several pupils of the Clement "Demoiselle" school have been trying their wings.

Blériot Carrying Two Passengers.

USING a monoplane of the "No. XI" type, M. Blériot carried out a flight of 25 mins. at Issy on Saturday last, taking up two passengers, Morane and de Lesseps. Afterwards Morane accommodated several passengers with runs on the same machine, and with M. Farnier rose to a height of 165 metres.

In Honour of Blériot.

CAMBRAI is deeply conscious of the honour of having been selected as the birthplace of M. Blériot, and has been anxious for some time to pay homage to this most brilliant of its sons. Unfortunately he has been too busy up to now to accept this tribute, but hoping to have a little spare time to-morrow (Sunday), that day has been fixed upon for these festivities. In the morning M. Blériot will be received by the Mayor and Municipal Council in the Town Hall and publicly presented with a medal bearing the local arms. In the afternoon he will be present at the unveiling of a monument in the public gardens, which has been erected by his fellow townsmen in commemoration of his cross-country flight on July 25th of last year. In the evening a fête will be held at the Buse Camp, where it is hoped M. Blériot will do some flying during the day.

Cross-Country Flying in Belgium.

A NOTEWORTHY performance was made by the Chevalier Jules de Laminne on Saturday last, when, mounted on his Henry Farman biplane, he flew from the flying ground at Husselt to the Benvelos military camp. This was the first real cross-country aerial voyage over Belgian soil. The outward journey was made in twenty minutes, but during the return trip the Chevalier had to contend with a head wind and beating rain, and in consequence his time was 33 mins., during which an average altitude of 200 metres was maintained.

A New German Military Aeroplane.

It is whispered that on the occasion of the review of the Imperial Guard by the German Emperor before the King of the Belgians, a new military aeroplane which has been experimented with in secret for some time, will make its initial trials in public.

Illner Has a Mishap.

WHILE experimenting with a new motor which he had fitted to the Etrich monoplane on which he has been so successful lately, Herr Illner met with a slight mishap. A sudden descent damaged his machine, while the aviator himself sustained some bruises.

Flying Over Copenhagen.

THE Danish aviator, Nervoe, who has now taken his Voisin machine to Denmark, made a sensational flight on Friday of last week, passing over Copenhagen in a wide circle and returning successfully to his starting point at Amager, where the flying grounds belonging to the Danish Aeronautic Society are situated. Naturally the performance elicited a tremendous amount of enthusiasm, and M. Nervoe was given a rousing reception on his return.

Osmont in Roumania.

FOLLOWING his successes at Bucharest, during the latter part of last week, Osmont made a very successful series of flights on his Henry Farman machine at Braila. On the 1st inst., about 20,000

spectators assembled when he made several trips at a height of 200 metres, and one with a passenger at 120 metres. Later, Osmont flew across the Danube.

Mishap to M. Popoff.

THE Russian aviator, Popoff, who has hitherto proved a most capable and fearless exponent of the Wright machine, met with a very bad accident at Gatchina, near St. Petersburg, last Saturday. Owing to collision with a hillock, the aeroplane was capsized, and M. Popoff was thrown out of his seat, sustaining a fracture of the hip and severe injuries to his head.

An American Trick Flyer.

WITH enthusiasm roused to its highest pitch by Glenn Curtiss' trip down the River Hudson, the people of New York flocked in their thousands to Mineola last week to see the exhibition flights of Curtiss and his pupils. On Saturday last about 15,000 people were present, and they were duly thrilled to the full by Hamilton, the most daring manipulator of the Curtiss machine. In his daring methods he much resembles the late Lefebvre, and several times when he suddenly swooped down from a height it

seemed impossible that he would escape disaster, but in the next instant he had turned and was once more rising. Similarly, too, he circles round and round, gradually making the radius smaller and smaller, until the machine is at an alarming angle, but he never fails to right it, and with ease. All these tricks are greatly to the taste of his American audience, who prefer them to the lengthy flights of the ordinary kind.

More Big Prizes in America.

STIMULATED by the splendid flight of Glenn Curtiss from Albany to New York, several big prizes have recently been announced, although many of them do not appear to be quite definite. Among others it is reported that the *New York World* and the *St. Louis Post-Dispatch* have offered £6,000 for a flight between those cities, while the *New York Times* and the *Chicago Evening Post* have offered £5,000 for a trip between New York and Chicago. A race is also proposed between New York and Washington on Independence Day for a prize of £4,000, while a movement is on foot to organise a triangular event from Indianapolis to St. Louis and Chicago and back to Indianapolis, the prize to be £8,000. America has at last woken up to the possibilities of flight.

AIRSHIP NEWS.

Clement-Bayard Airship Out Again.

THE damage sustained during the trials some days ago having been repaired, the Clement-Bayard airship was taken from its shed at Lamotte-Breuil for a trial on Wednesday of last week. Since its previous appearance the arrangement of steering planes at the after-end of the vessel has been made a fixture and a separate rudder fitted. With the object of testing this modification the airship, carrying a crew of six, including M. Clement himself, manoeuvred over its shed for an hour at a height of 800 ft. During the trials the airship kept within a radius of about two-thirds of a mile, and was safely docked at the conclusion.

On the following morning the airship was again taken out and made a successful flight to Compiègne and back, the distance of about 24 miles being covered in half an hour. On the return to its shed, the landing was rendered somewhat difficult on account of the wind, and once again the framework of the car suffered damage. This however is said not to have been so serious as on the three previous occasions.

Names for French Dirigibles.

In view of the proposal to increase the fleet of French military dirigibles, the Minister of War has been getting out a list of suitable names for them. It is proposed to thus commemorate some of the most prominent men who have studied the subject of aeronautics,

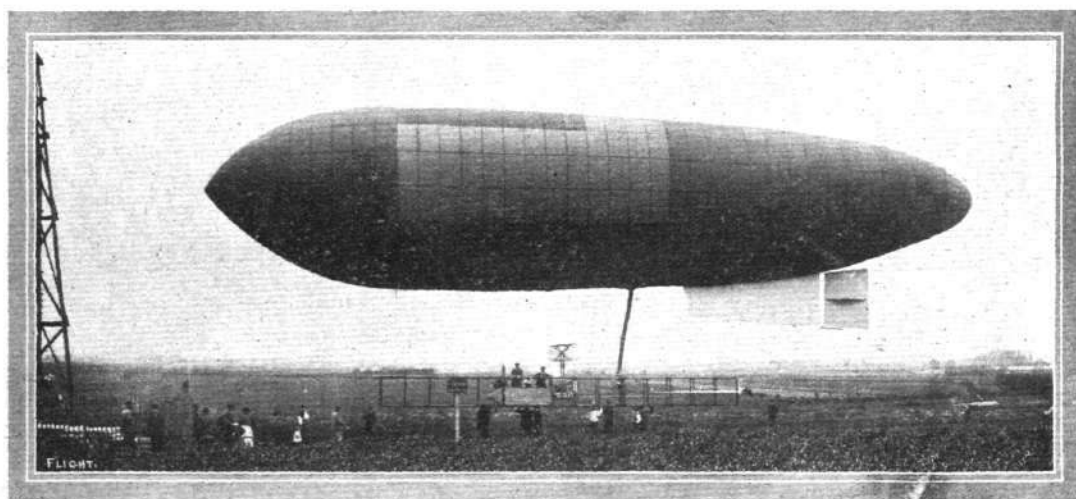
such as Montgolfier, Pilâtre-de-Rozier, Charles Blanchard, Guyton-de-Morvan, while the martyrs, Delagrange, Capt. Ferber, Le Blon and Capt. Ponand will not be forgotten. The three dirigibles which are being presented to the Government as a result of the "Republique" disaster will bear the names of the officers who lost their lives then: Capt. Marchal, Adjutant Vincenot and Adjutant Rean.

Austrian Lebaudy on Trial.

ON Saturday last the new dirigible which has just been built for the Austrian Government, from the designs of M. Julliot, was given its first trial trip, which lasted for half an hour. The trial was made at Fischamend, in Lower Austria, and Lieut. Tepres was in command, assisted by a French crew of five. The capacity of the envelope is 4,800 cubic metres, about twice that of the Parseval airship which the Austrian military authorities already possess. It is fitted with an Austrian motor of 100-h.p.

Chinese Prince in "Parseval II"

ON Friday morning of last week Prince Tsai Tao paid a visit to the German military airship headquarters, and in company with General Lowenfeld was taken for a trip of about 20 mins. in the dirigible "Parseval II." Afterwards the Prince was entertained to luncheon by the officers, and the arrangements of the airship were fully explained to the members of the suite.

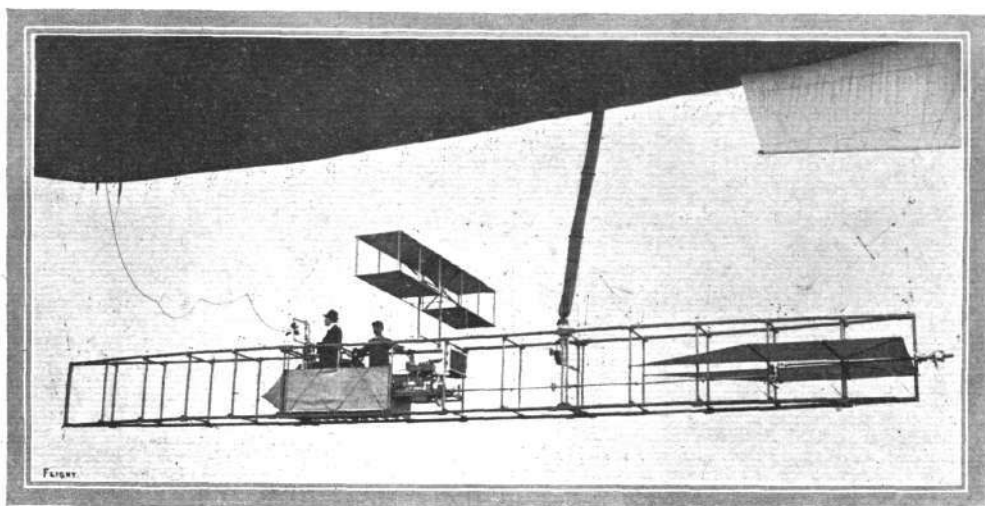


A MINIATURE DIRIGIBLE.—General view of the latest airship turned out by the Société Zodiac to an American order. The envelope is of 750 cubic metres capacity, and it is claimed for this airship that it is the smallest in the world.

First Airship Treaty.

THE negotiations for what will probably be the first Aviation Treaty are at present in progress between the Mexican and United States Governments, having been opened by the former. Mexico

suggests the compulsory registration of airships crossing the border, the adoption of certain regulations governing landing on the territory of the other, and the passengers and merchandise to be carried, so as properly to protect the interests of both countries.



A MINIATURE DIRIGIBLE.—View of the car on the latest Zodiac airship, illustrating the arrangement of the steering-planes and of the 30-h.p. Ballot motor which drives the single propeller. It will be noticed, too, that the centrifugal pump for keeping the envelope fully inflated is driven off the propeller-shaft.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents asking questions relating to articles which they have read in **FLIGHT**, would much facilitate our work of reference by giving the number of the letter.

NOTE.—Owing to the great mass of valuable and interesting correspondence which we receive, immediate publication is impossible, but each letter will appear practically in sequence and at the earliest possible moment.

THEORY OF AEROPLANES.

[561] I am rather puzzled about the theoretical lift of aeroplanes. I understand that most of the machines which have flown, such as Wright's, support a weight of about 2 lbs. for every square foot of surface. Now I find in published tables of wind pressure that the pressure of 2 lbs per sq. ft. corresponds to a speed of about 27 miles per hour. I gather that the speed of the machines is not very much greater than this. How then is it that the pressure on the under surface of an aeroplane, nearly flat, is nearly the same as would occur on the same plane if it were driven along perpendicularly to the air?

Could you tell me of any book which discusses in simple language the theory?

R. HICKMAN.

[Elsewhere in this issue we deal with this subject editorially.—ED.]

AUTOMATIC ADJUSTMENTS.

[562] You have omitted a full stop after the word "aeroplane" from the following portion of my letter (No. 539) *re* the above subject. "The short-funnel tube in this case would be placed parallel to the earth, and across the aeroplane. I would have a shield placed" &c. This omission seriously interferes with the proper reading of my description. Whilst I am thankful to you for giving publication to my letter, the use of the words "quite impossible" in your note at the end of it to a great extent counteracts the object for which I wished my suggestion inserted in your valuable paper, *i.e.*, that some of your readers might take up this line of thought and work therefrom. The two difficulties you raise to the possibilities of my plan are not at all serious ones; I had

foreseen them, and not until I had proved to my satisfaction that they were possible to overcome did I send you my suggestion. We are every day being taught by science that we ought to use the word "impossible" with great discretion, particularly where mechanism is concerned, and this caution is further brought home by the fact that I can positively overcome both the objections raised, and that without very elaborate mechanism. It was only in the absence of any other workable plan to automatically prevent an aeroplane being driven even miles out of its true horizontal course by a wind that I venture to submit you my suggestion. Hoping I will soon see some other suggestion put forward for the same purpose.

Dublin.

JAMES J. McGRATH.

OUR INSULAR POSITION.

[563] In your issue of May 28th Mr. Miles, writing on "Our Insular Position," criticises those whose perception is evidently keener than his own. Because these "Jeremiahs" of the Press lament that our insularity is gone, it does not necessarily follow, as Mr. Miles seems to assume, that they also believe an aerial invasion to be possible. These "Jeremiahs" and other people recognise that which Mr. Miles does not, namely, that aerial attack, like marine attack, is not confined only to invasion. To say that marine locomotion menaces our insularity far more than aerial locomotion betrays a woeful lack of knowledge as to the conditions or possibilities in both cases. The dangers arising from seaward are (1) invasion, (2) coastal attack, (3) cutting off food supply. The sea has definite boundaries, which are the coasts. An army of invasion embarking from its own shores, in transports, renders itself incapable of defence or offence until it has disembarked upon our shores. We know that it must land on our coasts, and the danger is thus localised, and we have only to defend our coasts to avert it. Now, in the case of a coastal attack, this can be minimised or averted by the same means as employed against invasion; but even if the attack is successful, its immediate effect is only on the coast, for naval attack cannot penetrate inland. In short, only the edge of the country is exposed to the first two seaward dangers. The third and perhaps most serious form of attack by sea, the cutting of the food supply, can only be prevented by retaining the command of

the sea, and regarding the coast lines of the enemy as our frontiers. Now turning to the dangers of airward attack, we find that whereas the sea has boundaries the air has none. We know that an attacking force from over sea must cross the boundary between sea and land, and we know therefore what parts to defend, and where to expect attack. The air having no boundaries, we cannot locate a possible aerial attack, and consequently not only the edge of the country, but its whole area must be defended. Therefore, in aerial warfare we possess no insularity; and the sea, hitherto a protection, may become a menace, that is if the passage of aerial warcraft across a neutral country, on its way to the scene of action, is forbidden. A Continental nation having a hostile power on one side, and neutral powers on the other three, may, if the neutrality of the air over neutral countries be assumed, expect attack only from the direction of the hostile power, whereas we, having the sea on all sides, must expect attack from all sides, because the sea is free to all. It is, of course, foolish to assume that aerial attack will take the form of invasion, for this was not the only danger which threatened our insularity when marine locomotion became practicable, for we had naval warfare, and coastal attacks; and so with aerial locomotion will come a special form of danger to our insularity. There will be aerial raids, the destruction of dockyards, arsenals, forts, camps, water, gas and other works and factories, and even the bombardment of towns and cities, all of which have a greater moral effect, at less cost, and the employment of fewer men, than an invasion or coastal attacks.

HAROLD R. INGERSOLL,

Hon. Sec. and Paymaster, Legion of Frontiersmen,
Pin Mill. Suffolk, Maritime Division Pin Mill.

POSITIVE AND NEGATIVE ANGLE.

[564] In your issue of May 28th, Letter 538, Miss Bland, in speaking of gliders, says the spars in her machine have a positive and negative angle. Perhaps she would be kind enough to explain the details of this construction.

Dunstable.

R. G. PINNOCK.

THE "MOONBEAM."

[565] Thinking it a matter of some interest, I enclose you photos of my aeroplane ("Moonbeam"). It is a monoplane, built rather on the lines of the "Santos," though of light steel tubing, planes having a tapering chord and a span of 24 ft. A 4-cyl. 20-h.p. J.A.P. engine is fitted, and a 6-ft. wooden propeller.

The machine is manipulated from a single wheel, which is mounted on a spherical trunnion, thus taking all control.

The machine weighs about 260 lbs., of which 160 lbs. is engine and propeller.

I regret not having a photo of plane during flight, although several satisfactory flights have been made.

The machine has been under trial for some weeks. It was made in my own shops at Southampton.

ROWLAND MOON.

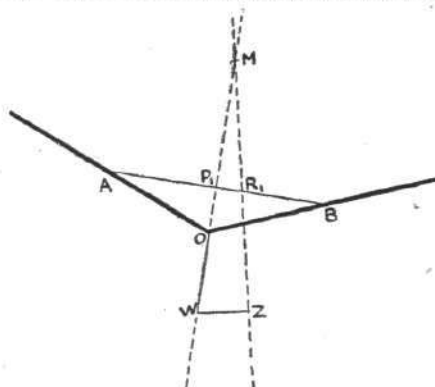
THE DIHEDRAL ANGLE.

[566] I have read many letters in your paper on the stability of the dihedral angle, may I point out a detail which has been missed. For anything to be in stable equilibrium there must be a righting arm, which increases for an increase in angle of tilt.

Taking the old diagrams from your paper, every writer has taken the CP and CG at O. Now with a dihedral angle CP cannot be at O although pressure may act through O, it is surely along a line

joining the CP's of the two wings, and if pressures on the two wings are equal it will be at the centre of this line.

Now-tilt the machine, and your correspondents say that they get a greater pressure on plane B, if so the resultant CP is nearer B along the line AB, but we may not have a greater pressure on B than A. Also CG is at O (it need not be, but anywhere down the line OW). Resolve the force acting through the resultant CP into



two components, horizontal and vertical, we see there is a moment tending to stabilise the machine which depends on distance, WZ , and is decided by the following:—

1st. Distance OW which is known for any machine, and distance OR which depends on the dihedral angle.

2nd. On position of R along AB which depends upon the pressure on the wings A and B .

The nearer the CG is to O the less range the CP has along line AB to produce stable equilibrium.

Govan.

L. RENATEAU.

THE "MAYFLY."

[567] In reply to Mr. Vaughan, with regard to weight carried by gliders, I got my figures from "Vehicles of the Air," which is quite the best book on the subject of aeroplanes, &c., that I have read.

Lilienthal's biplane glider weighed 200 lbs., area 170 sq. ft.

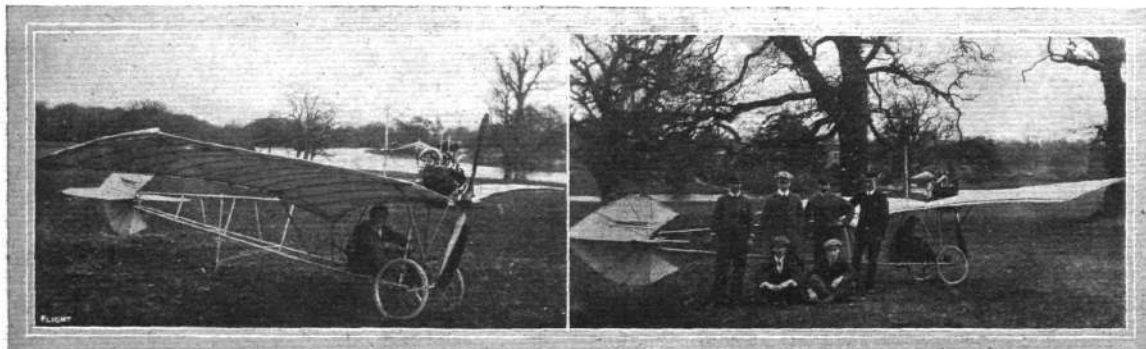
Pilcher's biplane glider weighed 215 lbs., area 165 sq. ft.

These weights must include the pilot. There is a most interesting table in the book, giving the efficiency of various flying machines and birds, &c.

With regard to wind speed, I measure the strongest gust with the anemometer you sent me. The wind is never steady in this country, as Mr. Grahame-White has found out, and he cannot fly in the strong winds they fly in abroad, where the wind comes to them over broad flat plains.

The strongest gusts my machine has been out in average 20 m.p.h., the anemometer is supposed to be correct for winds up to 25 m.p.h.; for higher speeds one deducts 10 to 20 per cent., as it over records.

In a wind of 20 m.p.h., the machine has lifted 698 lbs., which includes her own weight; this works out at 2.5 lbs. to the sq. ft. She was then on a flat plateau, on the side of a hill, and she was



Mr. Rowland Moon's "Moonbeam," after Santos Dumont.

practically on a level keel. On another occasion two men were sitting on the main plane, and I was standing on a wing tip, taking off a panel, when the machine rose and started to glide down the hill, angle about 7° , wind 15 m.p.h. The men weighed about 12 st., and I weigh about 8 st. 5 lbs. We naturally hastily dropped off, but I have had at various times a lot of dead weight on the machine, and have never been able to overload her with a 20 m.p.h. wind.

I have not found any difference in lifting efficiency with the machine near the ground, she has always lifted straight off the ground, without any run, and I have balanced the whole machine on my finger tips in a wind of 14 m.p.h., when she was floating with all the ropes slack. I then started to walk backwards, drawing her after me, on a very slight slope, and she promptly got up speed, knocked me down with the skids, and glided down some way on by herself. She weighed 300 lbs. then, but when she was floating there was no weight on my hands at all. I think no one at present knows the correct wind pressures on curved surfaces, and I think that biplanes will lift more than they are designed for at present figures. With regard to head resistance of biplanes, the Wrights calculated that their machine with pilot, at 24 m.p.h., had a resistance of 40 lbs. My machine on a practically level field will glide forward into the wind, the angle of the planes being also level. I do not know what her gliding angle is, because she remains on a level keel at angles varying from 15° to a flat field, with the ropes vertical. She rises off the ground at rather a steep angle, but the moment she gets into the wind she sails off level. It would be very difficult to find the angle of the wind, as the ground is so broken; the south wind comes over a hill 1,000 ft. high opposite to my gliding hill, which is 700 ft., and I get it in two main streams east and west, the valley between breaking this up into every kind of eddy.

I found that with a fixed fin behind the machine would always sail into the wind as it changed. I have also flown her without a tail and without elevators, and minus both, there is considerably less lift without the elevators, and without the tail she is more inclined to dive when landing. With regard to launching, the machine has always risen from a stand (I mean off the ground), and a very slight forward pull on the ropes starts her forward; I think the best method of starting a glider is to have them on light racing sulky wheels, and with a suitable hill a slight push from one assistant would start them off; a brake would have to be used to stop the machine in landing, unless there was a clear run at the bottom of the hill.

The machine has not been used as a glider since Easter, for several weeks there was no suitable wind, and then I started to overhaul the machine for the engine, which was to have been ready early in May, but there have been delays, and I now expect it in a week.

My machine was from the first built to take an engine, so it is heavier than is necessary for a glider; to make a lighter machine with equal strength is quite possible but much more expensive, as I should have to get my timber from England, use a light acroplane fabric, and have fittings of aluminium instead of steel and iron; as it is, all my clips, and many bolts, &c., are home-made, at very little cost. The total weight of the machine in flying order will be 526 lbs., which is not much for a biplane. She is now fitted with 24-in. motor bicycle wheels, one each side of a Farman-type skid, and other details have been altered.

The following table may be of interest:—

Machine Gliders.	Weight (lbs.) with Pilot.	Area. sq. ft.	Loading.	
			lbs. per sq. ft.	h.p.
Montgomery monoplane	200	185	1'08	—
Lilienthal biplane	200	170	1'18	—
Wright biplane	238	290	1'22	—
Ditto	210	160	1'31	—
Filcher (the Hawk)	215	165	1'33	—
Lilienthal monoplane	180	85	2'11	—
*Albatross	25'36	8'12	3'12	—
*Wild Goose	9	2'65	3'396	346
*Condor	17	9'85	1'726	395
*Bustard	20'29	6'02	3'36	—

* Soaring birds.

LILIAN E. BLAND.

STREAM LINE EXPERIMENTS.

[568] With reference to letter No. 546, I gave a description of what happened to a plane driven through steam, in a back number of FLIGHT, to which your correspondent can refer. The conditions were the bathroom filled with steam on a frosty morning.

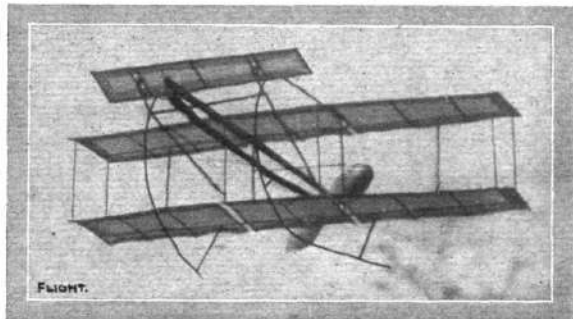
LILIAN E. BLAND.

MODELS.

A FARMAN MODEL.

[569] I herewith send you photograph of my model Farman biplane 1 in. to the ft. from scale. Drawings appeared in FLIGHT No. 42. It has flown short distances, but nothing to speak of, owing, I suppose, through not having a tail, which is now being added. The frame is built up of $\frac{1}{8}$ in. and $\frac{1}{4}$ in. birch, being very strong and hard, all joints being made with small gimp pins.

The planes are very light, being made up of thin strips of cane covered with thin yet strong yellow waxed paper.



I use a powerful motor comprising 30 strands of $\frac{1}{16}$ in. elastic 24 ins. long, driving a 9 in. (Bonn and Co.) aluminium propeller. Hoping this will be of use to your readers, and wishing your paper every success.

Birmingham.

J. W. DENHAM, JUN.

TESTING MODEL PROPELLERS.

[570] I should be much obliged if you would publish the following sketch and description of how to test the practical efficiency of model propellers, in your excellent paper:—

From A to B is a length of florist's wire (or thin string), from which is suspended by wires a chassis, C, which is free to slip along the wire AB. To the chassis is fixed the elastic and propeller, D,



the latter, upon being wound up and then released, drives the chassis along the wire. Therefore the propeller or tractor that sends the chassis along the fastest is naturally the most efficient.

Hoping this will be of some use to the readers of FLIGHT.

Upper Baker Street.

H. V. JERRARD.

CLARKE MODEL.

[571] Having read with interest Mr. Clarke's explanation, in January 22nd, of the stability of his models, it has occurred to me that some of your readers may be interested in a simple explanation which does not invoke the aid of any mathematics.

The longitudinal stability of these models depends mainly upon two conditions.

(i) The centre of gravity of the model is forward of the "centre of figure" of the surfaces.

(ii) The smaller (front) surface is set at a steeper angle than the larger (rear) surface.

From (i) it is clear that the front surface is called upon to support a larger weight in proportion to its area than the rear surface, and therefore if the model is dropped in a horizontal position with the propeller working, but with no initial forward motion, the front will drop faster than the rear, the machine will acquire a forward tilt, and will slide down a slope with increasing speed.

Now from condition (ii) it follows that as the speed increases the lift of the front plane in proportion to its area increases more rapidly than the lift of the rear plane. At a certain speed the larger lift per unit area of the front plane more than counter-balances the larger load per unit area upon it; the front of the machine rises, and the machine glides uphill until the speed is sufficiently reduced for the larger load on the front plane to overcome its more rapidly-diminishing lift, when the downhill glide again occurs. If the design of the model is right these alterations of uphill and downhill will gradually die out; if not, they may increase until the model either dives head first and capsizes, or slides back on to its tail end.

I take it that the most important factor in damping out these oscillations is the relative smallness of the front surface, which allows it to make a greater amount of slip, or leeway, than the larger one—in other words (looking upon the front surface as a horizontal rudder) prevents the model answering her helm too readily.

Longitudinal stability is gained by this method (as also, by the way, is lateral stability by the dihedral angle) at the expense of efficiency. For clearly more work is required to propel through the air two surfaces making different angles with the direction of motion, than two surfaces which are parallel and make the least possible angle to give the required lift. But if the centre of gravity is so placed that a machine in flight normally has its elevating plane and main plane parallel, longitudinal stability can only be obtained by constant small movements of the former, *i.e.*, the machine must be kept constantly in unstable equilibrium in the same sort of way as a bicycle. This method appears to be out of the question for a model, though I think it might be made automatic, to a certain extent, on full-sized machines.

When a model of the Clarke type is gliding with propeller not working, the action is precisely the same, except that the whole machine has a sufficient forward tilt to cause the supporting surfaces to supply the motive power under the influence of gravity. If for any reason the front part of the model drops below its normal position then the speed increases, the supporting power of the front surface increases more than that of the back, and the model regains its normal position. Similarly the reverse happens if for any reason the front rises.

It is interesting to note that given the centre of gravity, the angle between the two surfaces may be varied within certain limits, and that the speed of stable gliding depends upon the angle. The less the angle the greater the speed, and not necessarily the steeper the glide. But up to a certain point the greater the angle the more stable will be the equilibrium, &c.

L. S. R.

Mr. C. Grahame-White's New Biplane.

DURING the past week the British-built biplane with which Mr. Claude Grahame-White hopes to make an early attempt to fly from London to Paris has been on view at Messrs. Gamage's. In general appearance the machine resembles that designed by M. Sommer, but it differs in several minor details. Approximately the two main planes have a span of 33 ft., and they are placed about 5 ft. 9 ins. apart. The lifting surface is about 450 sq. ft., and the machine weighs approximately 800 lbs. The ribs are made of poplar and ash, and are so constructed that they can be easily replaced by slotting on to the main supports of the planes. These, together with the struts, are made of ash.

Rapid Shed Building.

IN connection with the cross-Channel flight of the Hon. C. S. Rolls, it is interesting to note that the shed which housed his machine on Dover cliffs was erected by Messrs. W. Harbrow in forty-eight working hours. It is of strong timber framing sheeted with galvanized corrugated iron. The front portion of the shed measures 45 ft. by 21 ft., and it has a recess 16 ft. wide by 17 ft. deep at the back to receive the front elevating planes. The shed, which has a superficial area of 1,217 ft., is now for sale.

NEW COMPANIES REGISTERED.

Butler Aeroplane Co., Ltd.—Capital £2,000, in £1 shares. Formed to acquire the business carried on by F. H. Butler at 1, Chesham Road, Norbiton, and 11, Coombe Lane, Kingston-on-Thames.

Olympia Picture Palace and Aero Exhibition, Ltd., Olympia, Foreshore Road, Scarborough.—Capital £2,500, in £1 shares. Formed to acquire the "Olympia," Foreshore Road, Scarborough, under agreement with G. W. Boothby, T. M. Foley, J. M. Hind, F. Jellings, H. A. Whittaker, and W. A. Wilson.

Aeronautical Patents Published.

Applied for in 1909.

Published June 9th, 1910.

- 11,526. H. LAMB. Aeroplanes.
- 12,042. W. H. DONNER. Aerial locomotion.
- 14,927. F. J. MATEVKA. Flying machines.
- 25,780. G. VINET. Aeroplanes.
- 30,388. S. V. DE BOLOTOFF. Explosion engines for aerial machines.

Applied for in 1910.

Published June 9th, 1910.

- 2,904. W. KRESS. Flying machines.
- 2,611. H. L., A. E., and W. O. SHORT. Construction of aeroplanes.
- 10,816. R. A. FESSENDEN. Flying machines.

DIARY OF FORTHCOMING EVENTS.

British Events.

1910.	1910.
June 18 Yorkshire AeC. Model Competition.	July 23 Balloon Race, Hurlingham.
June 25-July 2 Wolverhampton.	July 28-Aug. 3 Southport.
July 2 Balloon Race, Hurlingham.	Aug. 6-13 Lanark.*
July 9 Coventry AeC. Model Trials.	Aug. 15-20 Aintree.
July 11-17 Bournemouth.*	Aug. 24-27 Cardiff.
July 16 Kite and Models Competition. Kite and Model Aeroplane Assoc.	Aug. 17-24 Southend.

Foreign Events.

1910.	1910.
June 5-12 Vichy.	Sept. 24-Oct. 3 Milan.
June 5-13 Budapest.*	Oct. 28-29 St. Louis. Gordon-Bennett
June 26-July 10 Rheims.*	Balloon Race.
July 24-Aug. 10 Belgium.	Oct. 25-Nov. 2 America. Gordon
Aug. 25-Sept. 4 Deauville.	Bennett Aeroplane Race
Sept. 8-18 Bordeaux.	

* International.

BACK NUMBERS OF "FLIGHT."

SEVERAL back numbers are now very scarce, and have been raised in price as follows:—

No.	1909.	Table of Propellers ...	s. d.
No. 2, Jan. 9,	containing	"How Men Fly" ...	1 6
6, Feb. 6,	"	Aeronautical Bibliography.	1 0
	"	Wright Bros.' Elevator Patents.	
8, " 20,	"	Flying Ground at Farnbridge	1 0
	"	Illustrated Glossary.	
10, Mar. 6,	"	Human Side of Flying ...	1 0
	"	Aero Club Ground at Shellbeach.	
	"	Military Aeronautics.	
12, " 20,	"	Souvenir Supplement...	1 6
15, Apr. 10,	"	Engines at Olympia ...	1 0
16, " 17,	"	Prize List ...	3 6
	"	Models at Olympia.	
31, July 31,	"	Blériot Flyer ...	2 0
	"	(Full page drawing.)	

Other back numbers (excepting Nos. 3 and 4, which are out of print), post free, 1½d. each, including descriptions and scale drawings of the Voisin (Nos. 33 and 34), Curtiss (No. 27), Cody (No. 34), Farman (No. 42), and Wright (No. 63) biplanes, the Santos Dumont (Nos. 40 and 41), Antoinette (Nos. 43 and 44), and Grade (No. 50) monoplanes, and of a full-size Wright glider (Nos. 38 and 39).

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